



PATENT  
Docket No. 56842US002

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant(s): MITTELSTADT et al. )  
Serial No.: 09/888,943 )  
Confirmation No.: 9282 )  
Filed: 25 June 2001 )  
For: RESPIRATOR VALVE )

Group Art Unit: 3743  
Examiner: Nihir B. Patel

**APPELLANTS' BRIEF ON APPEAL**

Assistant Commissioner for Patents  
Mail Stop Appeal Brief - Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

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Dear Sir:

This Brief is presented in support of the Notice of Appeal filed June 24, 2003 from the final rejection of claims 1-18 in the above-identified application under 35 U.S.C. § 102 as set forth in the Final Office Action dated January 24, 2003.

This Brief is being submitted in triplicate, as set forth in 37 C.F.R. § 1.192(a). Applicants hereby authorize a charge to Deposit Account No. 13-4895 in an amount sufficient to cover the fee for filing this Brief under 37 C.F.R. § 1.17(f).

**I. REAL PARTY IN INTEREST**

The real party in interest of the above-identified patent application is the assignee, 3M Innovative Properties Company.

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## **II. RELATED APPEALS AND INTERFERENCES**

There are no appeals or interferences known to Appellants' Representatives which will directly affect, be directly affected by, or have a bearing on the Board's decision in the pending appeal.

## **III. STATUS OF CLAIMS**

Claims 1-18 are rejected and are the subject of this Appeal (see Appendix A).

## **IV. STATUS OF AMENDMENTS**

The present application was filed on June 25, 2001 with claims 1-18.

A first Office Action was issued on August 13, 2002 indicating that claims 1-13 and 15-18 were rejected and that claim 14 was withdrawn from consideration. The Office Action documented a telephone election of Valve Diaphragm Species illustrated in Figures 5a & 5b and Valve Assembly Species illustrated in Figure 7.

Applicants responded on November 13, 2002, amending claims 1 and 15. Applicants further affirmed the provisional election detailed in the first Office Action and disputed the withdrawal of claim 14, noting that claim 14 was generic to both the valve diaphragm species and the valve assembly species.

A Final Office Action was issued on January 24, 2003, finally rejecting claims 1-18. Claim 14 (previously withdrawn) was reinstated and considered by the Examiner in response to Applicants' arguments. As a result, claims 1-18 were finally rejected in this Office Action.

Applicants responded on April 24, 2003 with arguments as to the patentability of claims 1-18.

As indicated above, Applicants filed a Notice of Appeal on June 24, 2003.

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## **V. SUMMARY OF THE INVENTION**

The present invention is directed to unidirectional valves for use in, e.g., respirators. The valves include a valve flap (*see, e.g.*, Ref. No. 56a in Figure 5a) that has a contour shape. At least a portion of the contour shape is partially flattened when the valve flap contacts the valve seat. *See, e.g.*, FIG. 3 and Specification, p. 6, lines 11-16. All of pending claims 1-18 are found in Appendix A (attached).

## **VI. ISSUE PRESENTED FOR REVIEW**

Whether, under 35 U.S.C. § 102(b), claims 1-18 are patentable over U.S. Patent No. 5,509,436 to Japtunich et al.

## **VII. GROUPING OF CLAIMS**

For the purpose of this appeal, claims 1 and 8-18 stand or fall together. Each of claims 2-7 stands or falls alone.

## **VIII. ARGUMENT**

**The inventions recited in claims 1-18 are patentable over U.S. Patent No. 5,509,436 to Japtunich et al. under 35 U.S.C. § 102(b).**

Claims 1-18 were rejected under 35 U.S.C. § 102(b) as being unpatentable over U.S. Patent No. 5,509,436 to Japtunich et al. (referred to below as "Japtunich et al." and attached as Appendix B). Applicants respectfully disagree and request review and reversal of this rejection for the following reasons.

Claims 1 and 15 are not anticipated by Japtunich et al. because the reference does not teach each and every element of claims 1 and 15. For a claim to be anticipated under 35 U.S.C. § 102(b), each and every element of the claim must be found in a single prior art reference. *See,*

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*e.g., Verdegaal Bros. v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987) (cited with approval in M.P.E.P. § 2131).

For example, independent claims 1 and 15 each recite a valve flap that has a contour shape. At least a portion of the contour shape of the valve flap is at least partially flattened when the valve flap contacts the valve seat. Example of a valve flap having a contour shape is illustrated, *e.g.*, in FIG. 5a of the present invention where sealing element 71a of valve flap 56a includes support components 90a "to maintain the contour of the flap portion 70a." *See* Specification, page 8, lines 1-13.

As recited in independent claims 1 and 15, at least a portion of the contour shape of the valve flap 70 is at least partially flattened when the valve flap contacts the valve seat (as opposed to its contour shape when not in contact with a valve seat). Thus, the valve flap of the present invention is designed with a contoured shape or curvature. When in use and in contact with the valve seat, however, the valve flap is reshaped into a partially flattened shape.

In support of the rejection, it was asserted that that "Japtunich does provide at least a portion of the contour shape of the valve flap 24 is at least partially flattened when the valve flap contacts the valve seat 40." *Final Office Action, Response to Arguments*, p. 9 (January 24, 2003). Applicants disagree with this assertion.

The Examiner has not identified any support for the assertion in the Final Office Action other than pointing to the connection of the flap to the valve frame outside of the valve seat. *See, e.g., Japtunich et al.*, Col. 6, lines 33-35. The Examiner describes Japtunich et al. as including a "valve seat 40" against which the flap 24 is flattened.

This interpretation of Japtunich et al. is, however, mistaken because the valve flaps taught in Japtunich et al. do not have an inherent curvature or contour shape to flatten. Rather, Japtunich et al. teaches valve flaps that are flat.

Flexible flap 24 preferably is made from a material that is capable of displaying a bias toward seal ridge 30 when the flexible flap 24 is secured to the valve seat 26 at surface 40. The flexible flap preferably assumes a flat configuration where no forces are applied and is elastomeric and is resistant to permanent set and creep. *Japtunich et al.*, Col. 7, lines 27-34.

Flexible flap 24 may be cut from a flat sheet of material having a generally uniform thickness. *Id.* at Col. 7, lines 55-56.

In other words, Japtunich et al. teaches only flat valve flaps, not valve flaps with a contoured shape, at least a portion of which is flattened by contact with a valve seat as recited in claims 1 and 15 of the present application. Because Japtunich et al. does not teach each and every element of independent claims 1 and 15, Japtunich et al. cannot anticipate those claims.

In support of Applicants' position that claims 2-7 do not stand or fall with independent claim 1 (from which all of the claims ultimately depend), but rather stand or fall alone, Applicants offer the following arguments for each of claims 2-7.

With respect to claim 2, Applicants note that no support has been identified in the Final Office Action as to where or how Japtunich et al. teaches a valve flap that includes "a first side spaced from a second side, and wherein the valve contour varies between the first and second sides." As a result, Applicants respectfully submit that a proper case of anticipation has not been proven with respect to claim 2.

With respect to claim 3, Applicants note that no support has been identified in the Final Office Action as to where or how Japtunich et al. teaches a valve flap that includes "a compound curvature." As a result, Applicants respectfully submit that a proper case of anticipation has not been proven with respect to claim 3.

With respect to claim 4, Applicants note that no support has been identified in the Final Office Action as to where or how Japtunich et al. teaches a valve flap that includes "a first end spaced from a second end, and wherein the valve contour varies between the first and second ends." As a result, Applicants respectfully submit that a proper case of anticipation has not been proven with respect to claim 4.

With respect to claim 5, Applicants note that no support has been identified in the Final Office Action as to where or how Japtunich et al. teaches a valve flap that includes "a top surface, a bottom surface, and at least one support element extending from the top surface of the

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valve flap." As a result, Applicants respectfully submit that a proper case of anticipation has not been proven with respect to claim 5.

With respect to claim 6 (which depends from claim 5), Applicants note that no support has been identified in the Final Office Action as to where or how Japtunich et al. teaches a valve flap in which the "at least one support element provides the contour shape of the valve flap." As a result, Applicants respectfully submit that a proper case of anticipation has not been proven with respect to claim 6.

With respect to claim 7 (which depends from claim 6), Applicants note that no support has been identified in the Final Office Action as to where or how Japtunich et al. teaches a valve flap including "a plurality of support elements, wherein each of the plurality of support elements is spaced from each adjacent support element." As a result, Applicants respectfully submit that a proper case of anticipation has not been proven with respect to claim 7.

In view of all of the above, Applicants submit that the Office has not met its burden in establishing anticipation of claims 1-18 by Japtunich et al. Review and reversal of this rejection by the Board are, therefore, respectfully requested.

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**IX. SUMMARY**

It is respectfully submitted that all of pending claims 1-18 are patentable. It is earnestly requested that the Board reverse the Examiner's rejection of claims 1-18 and that all of the claims be allowed.

Respectfully submitted for

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I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR §1.10 on the date indicated above and is addressed to the Assistant Commissioner for Patents, **Mail Stop Appeal Brief – Patents**, P.O. Box 1450, Alexandria, VA 22313-1450.

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**APPENDIX A – PENDING CLAIMS**

**Serial No.: 09/888,943**

**Filed: 25 June 2001**

**Docket No.: 56842US002**

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1. A unidirectional valve comprising:  
a valve body including a frame, a valve opening through the frame, and a valve seat extending from the frame and at least partially surrounding the valve opening; and  
a valve flap having a first portion attached to the frame and an adjacent second portion free to move from a first position where the second portion is in contact with at least a part of the valve seat to a second position where at least part of the second portion is spaced from the valve seat, wherein the valve flap has a contour shape, and further wherein at least a portion of the contour shape of the valve flap is at least partially flattened when the valve flap contacts the valve seat.
2. The unidirectional valve of claim 1, wherein the valve flap further comprises a first side spaced from a second side, and wherein the valve contour varies between the first and second sides.
3. The unidirectional valve of claim 2, wherein the valve flap has a compound curvature.
4. The unidirectional valve of claim 1, wherein the valve flap further comprises a first end spaced from a second end, and wherein the valve contour varies between the first and second ends.
5. The unidirectional valve of claim 1, wherein the valve flap further comprises a top surface, a bottom surface, and at least one support element extending from the top surface of the valve flap.



6. The unidirectional valve of claim 5, wherein the at least one support element provides the contour shape of the valve flap.
7. The unidirectional valve of claim 6, further comprising a plurality of support elements, wherein each of the plurality of support elements is spaced from each adjacent support element.
8. The unidirectional valve of claim 1, wherein the valve seat is generally planar and the valve flap has a curvature that causes a bias of the valve flap toward the valve seat to provide a seal between the valve flap and the valve seat.
9. The unidirectional valve of claim 8, wherein at least a portion of the curvature of the valve flap is at least partially flattened when the valve flap contacts the valve seat.
10. The unidirectional valve of claim 8, wherein the bias of the valve flap toward the valve seat is sufficient to provide a seal between the valve flap and the valve seat in any orientation of the unidirectional valve.
11. The unidirectional valve of claim 1, wherein the frame of the valve body includes an angled portion adjacent the valve seat.
12. The unidirectional valve of claim 1, wherein the valve is an exhalation valve.
13. The unidirectional valve of claim 1, wherein the valve is an inhalation valve.
14. The unidirectional valve of claim 1, wherein the valve flap is removably attached to the valve body.

15. A respirator having a unidirectional valve, comprising;
- a face mask having at least one opening for receiving a unidirectional valve; and
- a unidirectional valve comprising:
- a valve body including a frame, a valve opening through the frame, and a valve seat extending from the frame and at least partially surrounding the valve opening; and
- a valve flap having a first portion attached to the frame and an adjacent second portion free to move from a first position where the second portion is in contact with at least a part of the valve seat to a second position where at least part of the second portion is spaced from the valve seat, wherein the valve flap has a contour shape, and further wherein at least a portion of the contour shape of the valve flap is at least partially flattened when the valve flap contacts the valve seat.
16. The respirator of claim 15, wherein the face mask is formed of a filtering material.
17. The respirator of claim 15, wherein the unidirectional valve is an exhalation valve.
18. The respirator of claim 15, wherein the unidirectional valve is an inhalation valve.

**APPENDIX B**

**U.S. PATENT NO. 5,509,436  
TO JAPTUNICH ET AL.**